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(71) Applicant (for all designated States except US): **ENVEN-  
TURE GLOBAL TECHNOLOGY** [US/US]; 16200 A Park  
Row, Houston, TX 77084 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SHUSTER, Mark**  
[US/US]; 19115 Prospect Ridge Lane, Houston, TX

77094 (US). **COSTA, Scott** [US/US]; 2011 Willow  
Point, Kingwood, TX 77330 (US). **RING, Lev** [US/US];  
14126 Heatherhill Place, Houston, TX 77077 (US).  
**KENDZIORA, Larry** [US/US]; 6518 Williams School  
Court, Needville, TX 77461 (US).

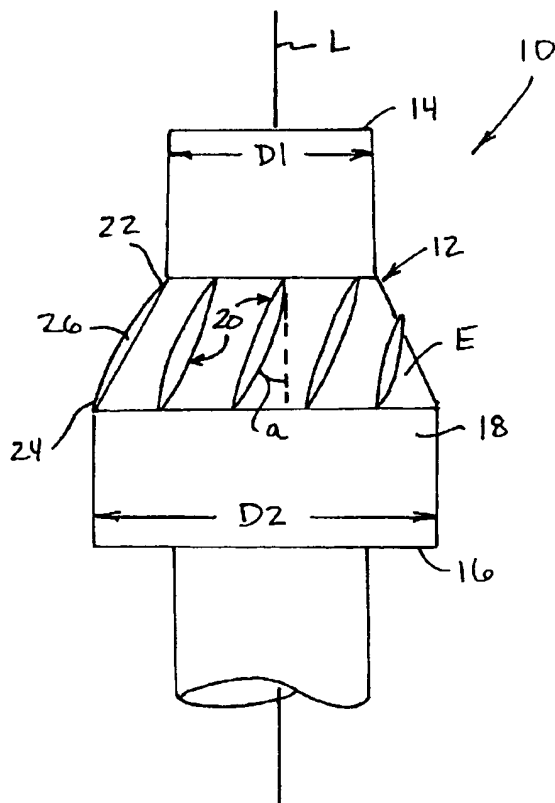
(74) Agent: **MATTINGLY, Todd**; Haynes and Boone, LLP,  
1000 Louisiana, Suite 4300, Houston, TX 77002-5012  
(US).

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(54) Title: **ROTATING MANDREL FOR EXPANDABLE TUBULAR CASING**



(57) Abstract: An expansion mandrel (10) for expanding tubular casing includes a tapered expansion portion having expansion segments (20) which are angularly disposed on an external surface of the mandrel (10). The segments (20) reduce friction and cause the mandrel (10) to rotate in response to the mandrel (10) being moved through the casing during expansion of the casing.

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/25715

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : E21B 23/00  
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According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 166/207,384,206,380

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.    |
|------------|--|--------------------------|
| X          | US 6,325,148 A (Trahan et al.) 4 December 2001 (04.12.2001), Fig. 9 and col. 6, lines 10-35.                                   | 1-3, 6, 9, 13-15, 17, 20 |
| X,P        | US 6,457,532 A (Simpson) 1 October 2002 (01.10.2002), Figs. 20, 22 24, and col. 12, line 27- col. 14, line 9.                  | 1-7, 13-17, 19           |
| ---        |  | -----                    |
| Y,P        |  | 8, 10-12, 18, 21-22      |
| X          | US 1,597,212 A (Spengler) 24 August 1926, (24.08.1926), Entire document, particularly Figure 1.                                | 1-5, 13-16               |
| ---        |  | -----                    |
| Y          |  | 8, 18                    |
| Y,P        | US Patent Application Publication 2003/0075338 (Sivley), 24 April 2003 (24.04.2003), Fig. 10 and paragraph 0118 on pages 9-10. | 10-12, 21, 22            |
| X          | US 3,039,530 A (Condra) 19 June 1962 (19.06.1962), Fig. 1, col. 1, lines 7-12.   | 1-3, 6, 9                |

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☐ See patent family annex.

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Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
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Facsimile No. (703)305-3230

Authorized officer

David L. Baggett

Telephone No. 703-308-1113